

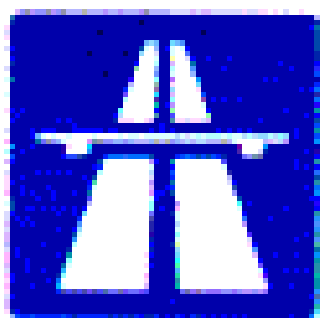
Safety Pays on  
Winter Days!



# Be Prepared for Winter Driving

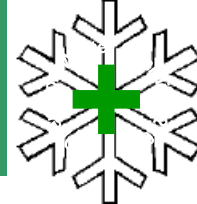
## Winter 2005-2006

- Before
- During
- After

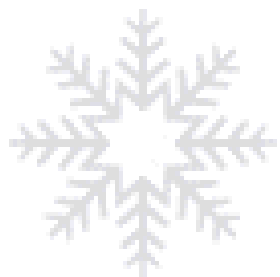


Weather

Traveler's Tools

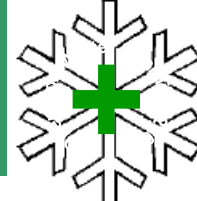


Safety Pays on  
Winter Days!



**You must understand how cold weather effects your vehicle before, during, and after operation.**

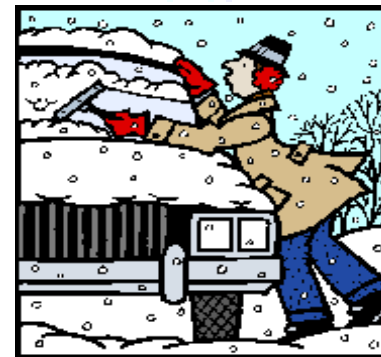


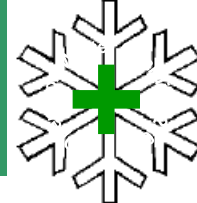


Safety Pays on  
Winter Days!

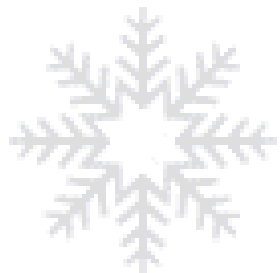
## Before beginning your journey during wintry weather conditions:

- Ask yourself if your journey is absolutely essential.
- Check local and national weather forecasts.
- Listen to local and national radio for travel information.
- Tell someone what time you expect to arrive.
- Think about taking warm clothes, boots, and a flashlight – it could be a long walk to a phone.
- Clear your windows and mirrors of snow and ice before you set off.





Safety Pays on  
Winter Days!

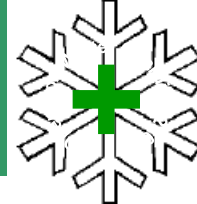


# Be Prepared for Winter Driving



- Before
- During
- After

Weather  
**CLOTHING**

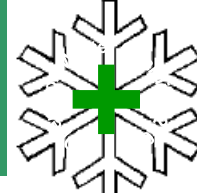


## Winter sun

Dazzle from winter sun can be dangerous!  
If it's too low for the visor, it might be worth  
keeping a pair of sunglasses handy

## ***WEAR QUALITY SUNGLASSES***

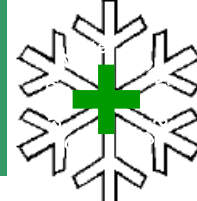
**Good quality sunglasses help highlight  
changes in the terrain and road surface,  
even in low visibility conditions**



## Dress Properly

- ✓ Wear several layers of thick, loose-fitting clothing.
- ✓ Wear a hat, scarf, and turtleneck sweater.
- ✓ The head and neck lose heat faster than any other part of the body.
- ✓ Dress for the cold.
- ✓ Don't forget a hat and gloves.



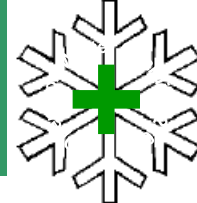


Safety Pays on  
Winter Days!

## Prepare the Driver

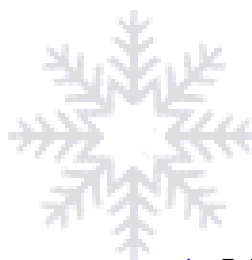
- ❖ Wear warm clothes that do not restrict movement.
- ❖ In bad weather, let someone know your route and intended arrival time, so you can be searched for if you don't turn up after a reasonable delay.



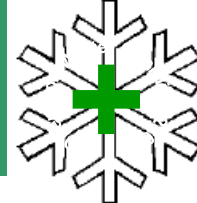


Safety Pays on  
Winter Days!



- 
- ❖ Wear several layers of loose fitting, lightweight clothing.
  - ❖ Wear mittens instead of gloves. Wear a hat.
  - ❖ Remember that entrapped, insulating air warmed by body heat is the best protection from the cold.





Safety Pays on  
Winter Days!

## Examples of wind chill:

With the temperature of 5°F and winds blowing at 35 mph, the wind chill index would be -21°F, which could cause frostbite within 45 minutes.

**(Increased Danger)**

With a temperature of -20°F and winds blowing at 35 mph, the wind chill index would be -55°F and could cause frostbite in less than 5 minutes. **(Great Danger)**

### Wind Chill Temperature Table

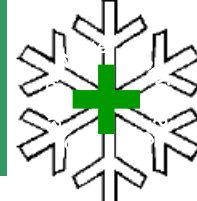
Wind Chill Temperature Table																		
Wind Speed (mph)	Air Temperature (°F)																	
↓	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
0	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95

**GREEN** LITTLE DANGER (frostbite occurs in >2 hours in dry, exposed skin)

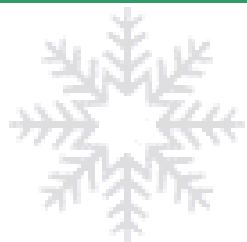
**YELLOW** INCREASED DANGER (frostbite could occur in 45 minutes or less in dry exposed skin)

**RED** GREAT DANGER (frostbite could occur in 5 minutes or less in dry, exposed skin)

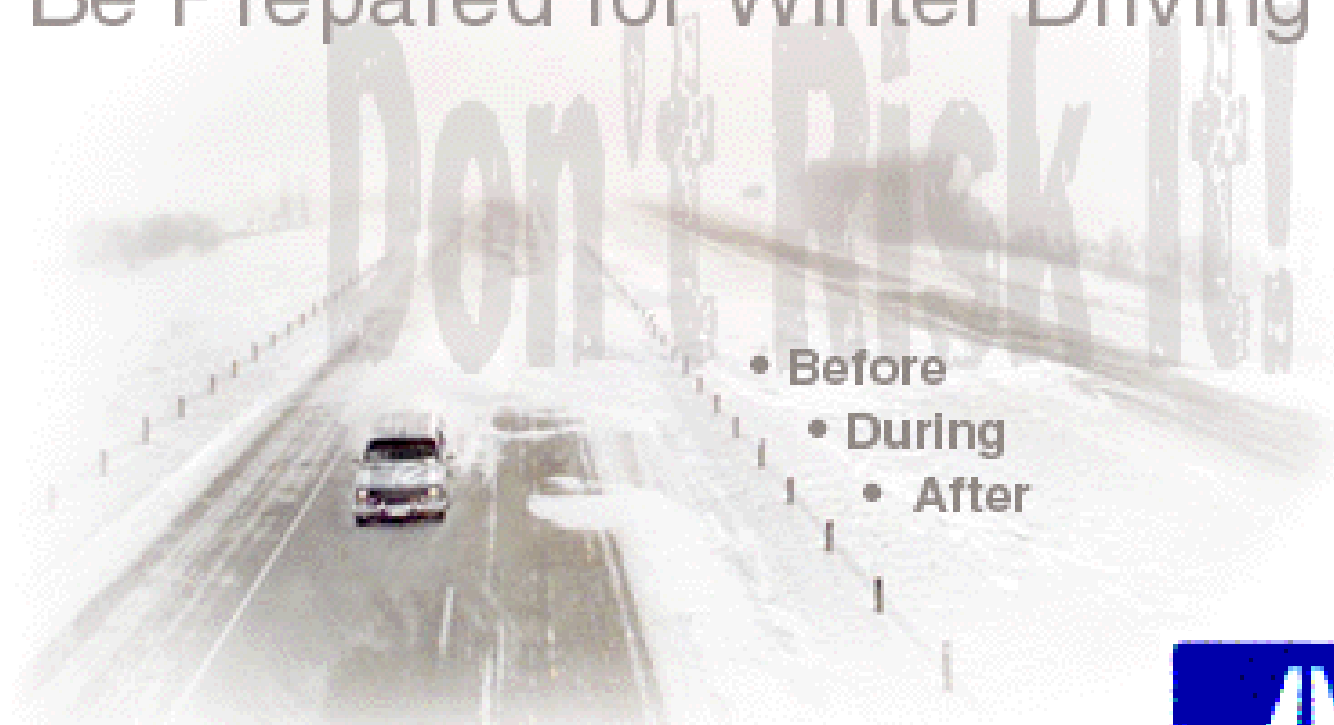
Read right and down from the calm-air line. For example, a temperature of 0°F combined with a 20 mph wind, has an equivalent cooling effect of -22°F.



Safety Pays on  
Winter Days!



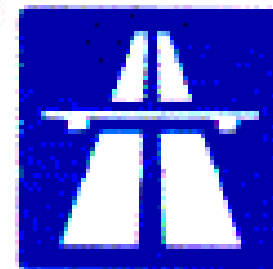
# Be Prepared for Winter Driving

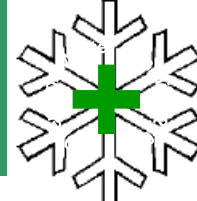


- Before
- During
- After

## Vehicle Preparation

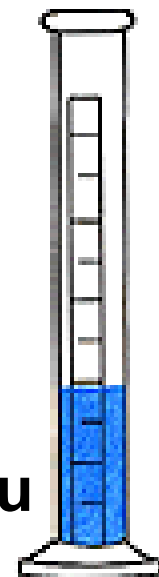
### *PREPARE FOR THE TRIP*





## Routine precautions help you avoid starting problems:

- ❖ Get an engine tune-up in the fall
- ❖ Be sure all lights are in good working order
- ❖ Have the brakes adjusted
- ❖ Remember to switch to winter-weight oil if you aren't already using all-season oil
- ❖ Battery and voltage regulator should be checked



✓ Dirty oil can give you trouble in the winter, so change the oil and filter. Check the other filters, including the fuel, air and transmission filters.

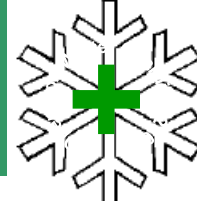
## Make sure battery connections are good.

❖ If the battery terminal posts seem to be building up a layer of corrosion, clean them with a paste of baking soda and water. Let it foam, and then rinse with water. Apply a thin film of petroleum jelly to the terminal posts to prevent corrosion, and reconnect.

***Wear eye protection!***



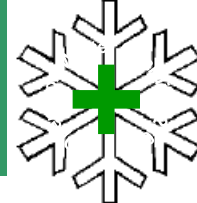
❖ Be sure all fluids are at proper levels.



- ❖ Antifreeze should not only be strong enough to prevent freezing, but fresh enough to prevent rust.
- ❖ Make sure wiper blades are cleaning properly. Consider changing to winter wiper blades, which are made for driving in snow. They are covered with a rubber boot to keep moisture away from working parts of the blade.

✓ *Clean frost and snow off the windows, mirrors, lights and reflectors.*

# Carbon monoxide.

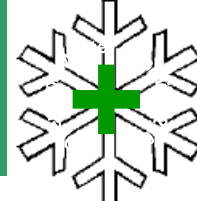


Safety Pays on  
Winter Days!

- Carbon monoxide, present in exhaust fumes, is almost impossible to detect and **CAN BE FATAL** when breathed in a confined area. Because of the danger of carbon monoxide poisoning, don't let your car warm up in the garage for a long period of time, especially if you have an attached garage. The fumes easily can seep into the house and overcome those inside, even with an open garage door.

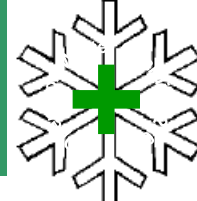
**Carbon  
Monoxide  
ALERT**

# Vehicle Preparation



Safety Pays on  
Winter Days!

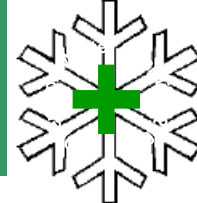
- ❖ **The exhaust system: Have the exhaust system checked fully for leaks that could send carbon monoxide into your vehicle.**
- ❖ **Heating and cooling system: Check your radiator and hoses for cracks and leaks. Make sure the radiator cap, water pump, and thermostat work properly. Test the strength of the anti-freeze, and test the functioning of the heater and defroster.**



❖ **Windshield:** Make sure wipers are in good condition and fill up on winter washer fluid. Keep extra in your trunk. Ensure your windshield can give you clear vision of the road and traffic around you.

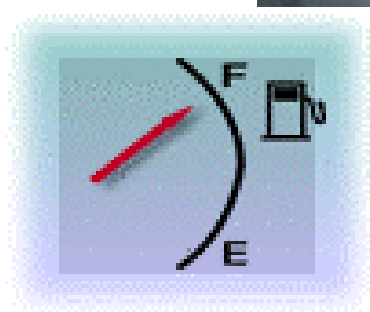
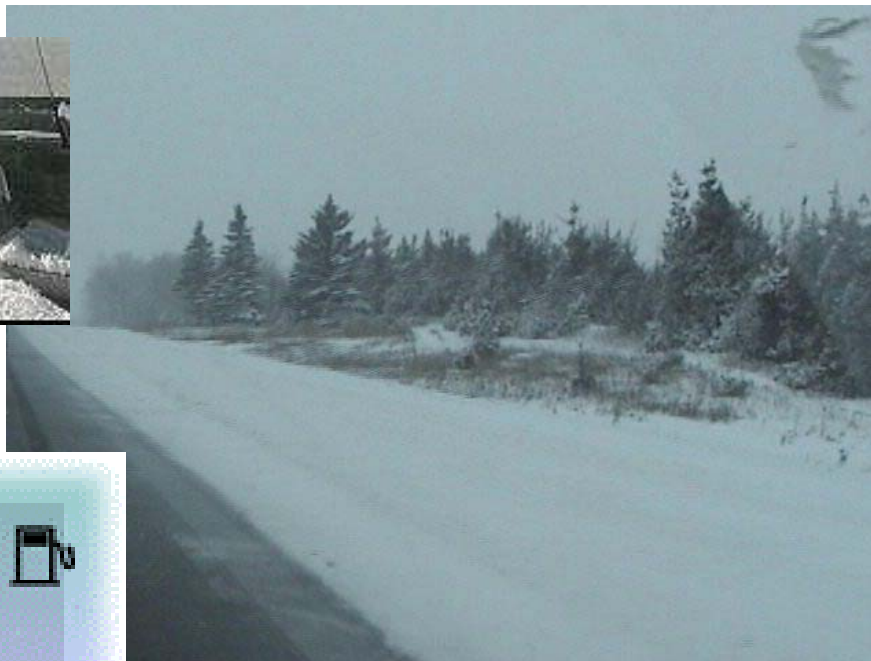


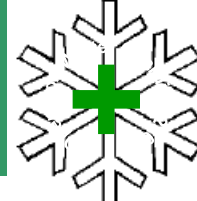




Safety Pays on  
Winter Days!

## **HOT HOT HOT** -- DON'T FORGET TO FILL UP WITH FUEL



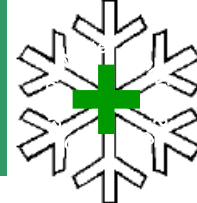


# Here's what you'll want to have on hand, especially in an emergency:

- ✓ Snow shovel.
- ✓ Scraper with a brush on one end.
- ✓ Tow chain or strap.
- ✓ Warning device (flares or reflective triangles).
- ✓ Brightly colored cloth to signal for help.



❖ *Don't forget the gloves. Your fingers will stick to cold metal.*

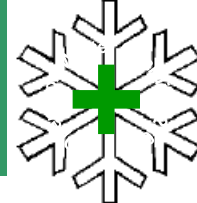


Here's what you'll want to have on hand, especially in an emergency (Con't):

- ✓ Flashlight (with extra batteries)
- ✓ Abrasive material (cat litter, sand, salt, or traction mats).
- ✓ Compass, Warning light or road flares, Booster cables
- ✓ First Aid Kit



*Keep the headlights on while driving. Don't use your bright lights because the snow can reflect light back into your eyes.*



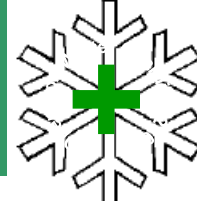
Safety Pays on  
Winter Days!



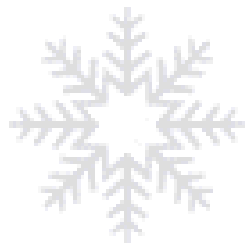
**German law requires that all automobiles be equipped with:**

- a triangle caution sign**
- a first aid kit (DIN number 13164).**

**First aid kits are available at the ADAC, AAFES, or German service stations**



Safety Pays on  
Winter Days!



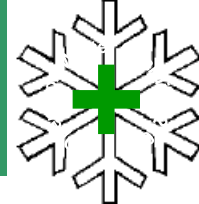
# Be Prepared for Winter Driving



- Before
- During
- After

**PREPARE**





Safety Pays on  
Winter Days!





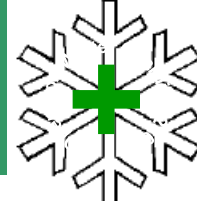
# ICE



**Expect icy conditions any time the outside air temperature reaches 40°F or lower. Although water freezes at 32°F, road surface can freeze when the air temperature drops to 40°F or less.**

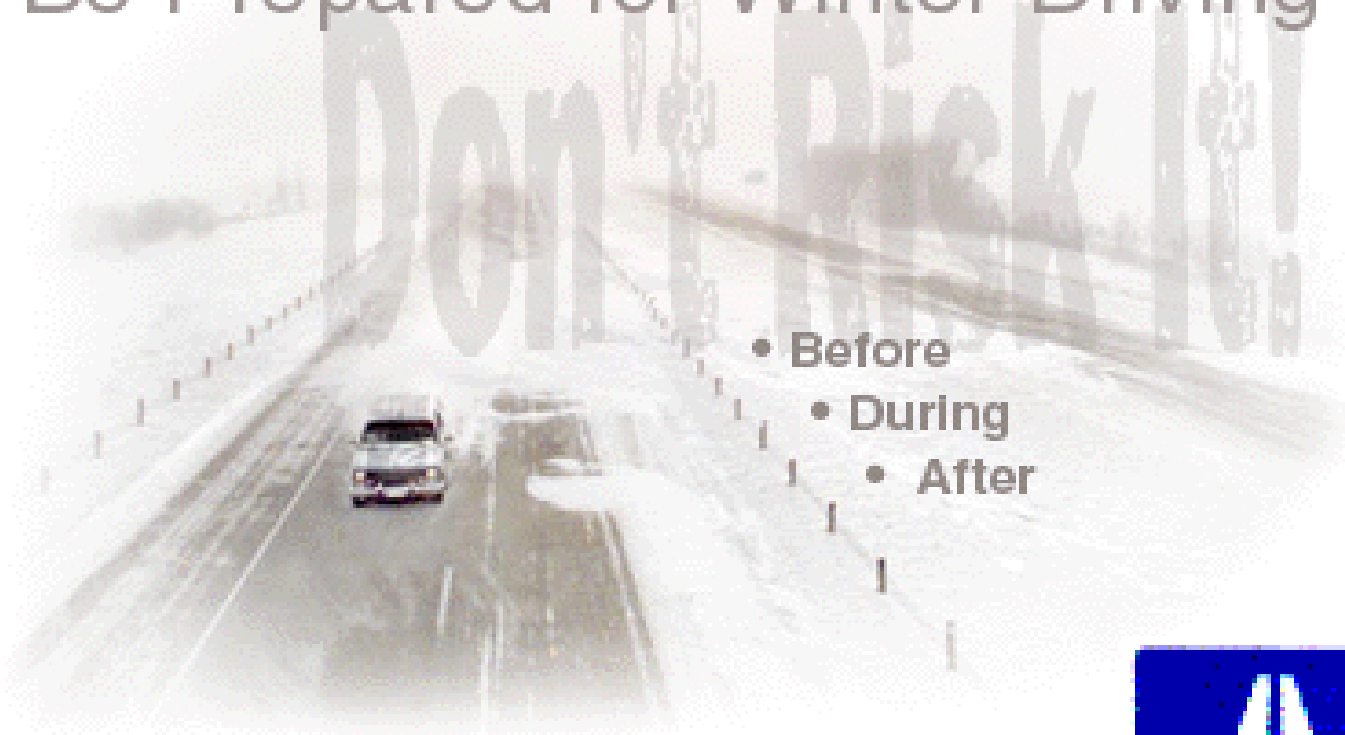
**An important place to watch for this condition is on bridges. Bridge surfaces are exposed to the wind and cool off faster than the rest of the road.**

**You should also prepare for icy conditions on roads through shaded areas where a cold wind can freeze a wet road surface.**



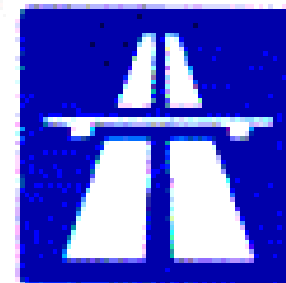
Safety Pays on  
Winter Days!

# Be Prepared for Winter Driving

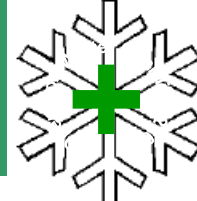


- Before
- During
- After

***DURING OPERATION***





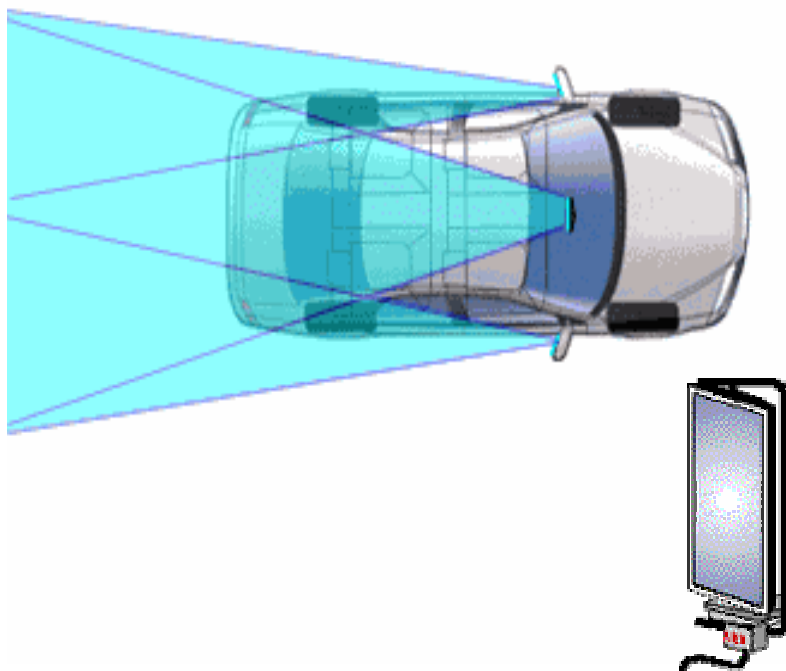


Safety Pays on  
Winter Days!

# BLIND SPOTS

## ADJUST MIRRORS

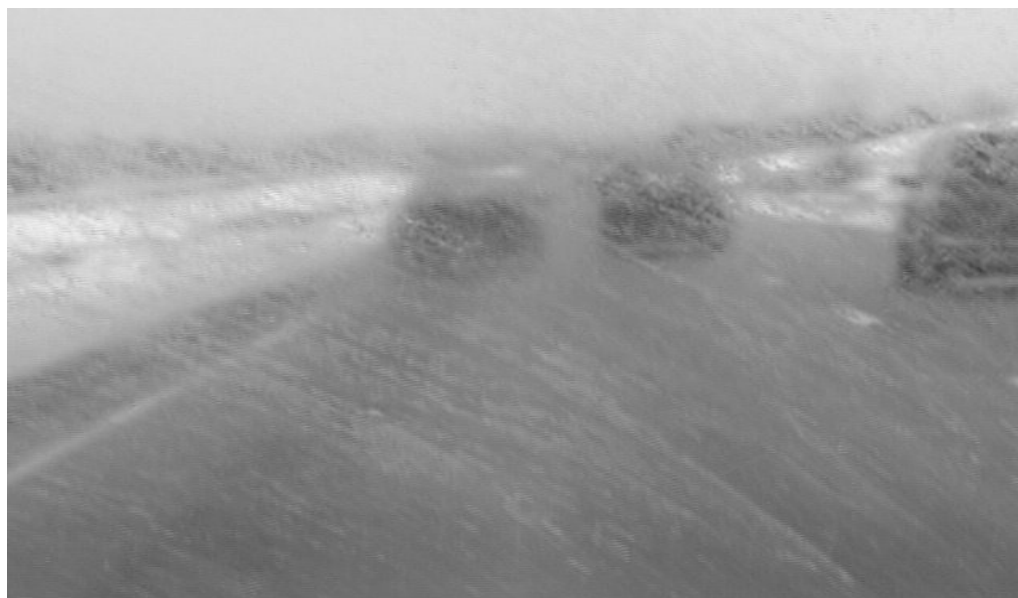
**TOO NARROW**



- ☐ Make sure all windows are clean and there is nothing blocking your vision.
- ☐ Adjust the seat so you can reach all pedals and controls easily.
- ☐ Adjust the inside and outside rearview mirrors.
- ☐ Fasten safety belts and shoulder harnesses so that they are firm and comfortable.

## ***ANTICIPATE DIFFICULT SITUATIONS*** -

Studies show that 80% of all accidents could be prevented with only **one** more second to react. In many situations, this **one** second can be gained by looking far enough down the road to identify problems before you become a part of them.

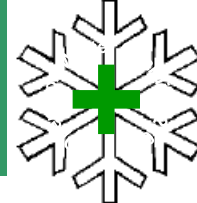


***TURN ON YOUR LIGHTS*** - Whenever daytime visibility is less than ideal, turning on your lights allows you to **see**, and to be **seen** by others. Remember this rule of thumb, Wipers On - Lights On. When traveling in snowy weather, remember to clear tail lights, signal lights, and headlamps regularly.





**ADJUST YOUR SPEED TO THE CURRENT CONDITIONS** - When driving in challenging conditions, SLOW DOWN! Decreasing your speed will allow more time to respond when a difficult situation arises. Factors such as the type of vehicle you are driving, the quality of snow tires your car is equipped with, and your abilities as a driver should all be considered in the speed adjustment.



Safety Pays on  
Winter Days!

# Black Ice



- **Black ice fools drivers. Its shine tricks them into thinking it's water on the road. What they may not realize is that condensation, such as dew, freezes when temperatures reach 32°F or below. This forms an extra-thin layer of ice on the road.**
- **This shiny ice surface is one of the most slippery road conditions. Black ice is likely to form first under bridges and overpasses, in shady spots and at intersections.**



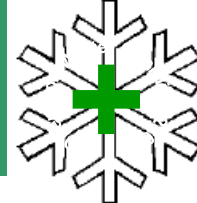
**Watch out for fog - it drifts rapidly and is often patchy**

- Drive very slowly using dipped headlights.
- Use fog lights if visibility is seriously reduced, but remember to switch them off when visibility improves.
- Don't hang on to the tail lights of the vehicle in front.

**This gives you a false sense of security and means you may be driving too close.**

- Don't speed up suddenly - even if it seems to be clearing, you can suddenly find yourself back in thick fog.





## When do I use Fog Lights?

**Fog lights are designed to be used during fog or foul weather, in conjunction with your low beams to focus as much light as possible on the ground directly in front of you. Providing increased light on the ground helps you to follow the road and helps reduce the reflection on the fog from your headlights.**

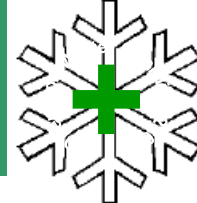
**Note: To prevent blinding drivers behind you, rear fog lights on European spec cars are not allowed to be used unless visibility is below 50 meters.**



## Fog Safety Tips:

- ✓ Drive with lights on low beam
- ✓ Reduce speed
- ✓ Avoid crossing traffic unless absolutely necessary
- ✓ Listen for traffic you cannot see





Safety Pays on  
Winter Days!

## Fog Safety Tips (Con't):

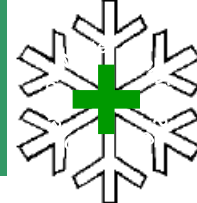
- ✓ Use wipers and defroster as necessary for maximum vision.
- ✓ Be patient! Don't pass lines of traffic.
- ✓ Unless absolutely necessary, don't stop on any freeway or other heavily traveled road.
- ✓ Consider postponing your trip until the fog clears.



# Risk Management Reminders

## Prepare the driver

- If you must drive in bad weather, plan ahead and make sure you have enough fuel.
- See and be seen; clear all snow from the hood, roof, windows and lights.
- Clear all windows of fog and moisture.
- If visibility becomes poor, find a place to safely pull off the road as soon as possible.



Safety Pays on  
Winter Days!



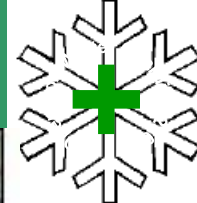
# Be Prepared for Winter Driving



- Before
- During
- After



Weather  
**TIRE/TRACTION/SPEED**



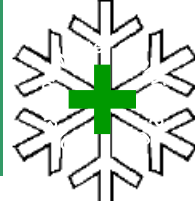
Safety Pays on  
Winter Days!



COMNAV

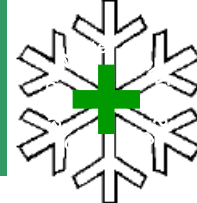
## ***When roads are icy or slushy***

- Drive slowly, allowing extra room to slow down and stop - it can take ten times longer to stop in icy conditions than on a dry road.
- Use the highest gear possible to avoid wheel spin.
- Maneuver gently, avoid harsh braking and acceleration.
- To brake on ice and snow without locking your wheels, get into a low gear earlier than normal, allow your speed to fall and use the brake pedal gently.
- If you skid, ease off the accelerator but do not brake suddenly. Steer in the direction of the skid.

Safety Pays on  
Winter Days!

***ANTI - LOCK BRAKES CAN'T  
PERFORM MIRACLES*** - Don't be misled  
by ABS braking systems. Braking efficiency  
is limited by the grip available, and the type  
of tires with which your car is equipped. If  
you carry too much speed into a corner and  
then try to brake, even  
ABS won't keep you on  
the road. Never count  
on technology to replace  
good judgment.





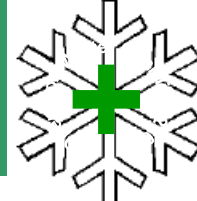
Safety Pays on  
Winter Days!



**If the tires begin  
to lose traction,  
resist the  
temptation to  
stomp on the  
brakes.**

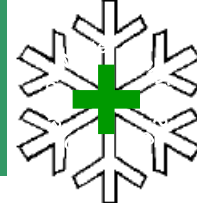






## ***Recovery from skids***

**No matter what kind of car you are driving, whenever a skid occurs you should turn the front wheels towards the direction in which the rear wheels are skidding.**

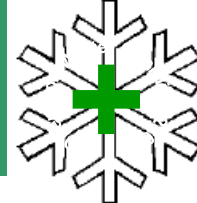


***WHEN DRIVING AT NIGHT*** - Leave your headlamps on low beam when driving in snow or fog. This practice minimizes the reflection and glare, improves visibility, and reduces eye fatigue. When oncoming cars approach,



focus on the right side of the roadway to help maintain good night vision.



Safety Pays on  
Winter Days!

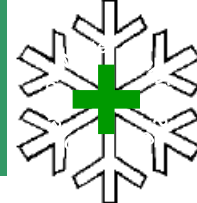
# USE SNOW **AND ICE TIRES IN WINTER**

**CONDITIONS** - Be aware that an all-season tire is a compromise, and will not perform as well as a snow and ice tire. To maximize safety and control, use the best snow and ice tires available. The studless tire is revolutionary and is considered by many to be a quantum leap in snow tire technology.



## Avoid hydroplaning

**Hydroplaning is caused by driving too fast on wet road surfaces. When driving at speeds of less than about 35 miles per hour (56 kilometers per hour), your tires will brush off the water on the road's surface in much the same way window wipers move the water on your windshield.**



Safety Pays on  
Winter Days!

## ***Slow down and live!***

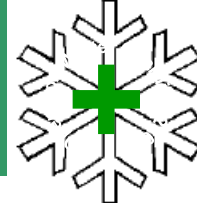


**It is most important to remember to slow down when the roads get slippery, and to practice anticipating what could be coming around the next curve. You have no control over who is behind the wheel of that vehicle approaching you. If you are going so fast that you are on the edge of control yourself, you will have no margin of error if the other driver suddenly loses control of their vehicle.**

## **FOLLOW THE TEN-POINT PLAN FOR SAFER WINTER DRIVING**

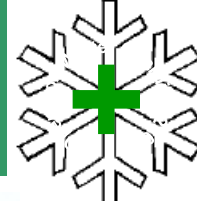
Hand in hand with winter comes heavy rain, fog, ice and snow. Bad weather affects visibility and stopping distances. Follow this ten-point plan and be a safer winter driver.

- 1. Allow extra time for your journey and reduce your speed.**
- 2. Increase the distance between you and the vehicle in front, and be certain you can stop within the distance you can see to be clear.**



Safety Pays on  
Winter Days!

- 3. If visibility is seriously reduced by fog, use dipped headlights and rear fog lights. (Use rear fog lights only when visibility is less than 50 meters). Switch on your wipers to keep your windscreen clear.**
- 4. Remember to turn fog lights off when they are no longer needed as they can be a distraction to other drivers.**
- 5. Remember the obvious - you can see snow, but you can't always see ice.**
- 6. Avoid sudden braking, accelerating too quickly and harsh steering in slippery conditions.**



Safety Pays on  
Winter Days!

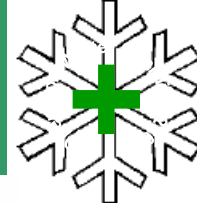
**7. Keep your windshield clear of snow and check from time to time that there is not a build up of snow on your lights.**



**8. Carry a shovel, extra warm clothing, a blanket, a snack and a drink - especially if you are traveling through isolated areas.**

**9. If you are going on a long journey, advise someone of your destination and what time you expect to arrive.**

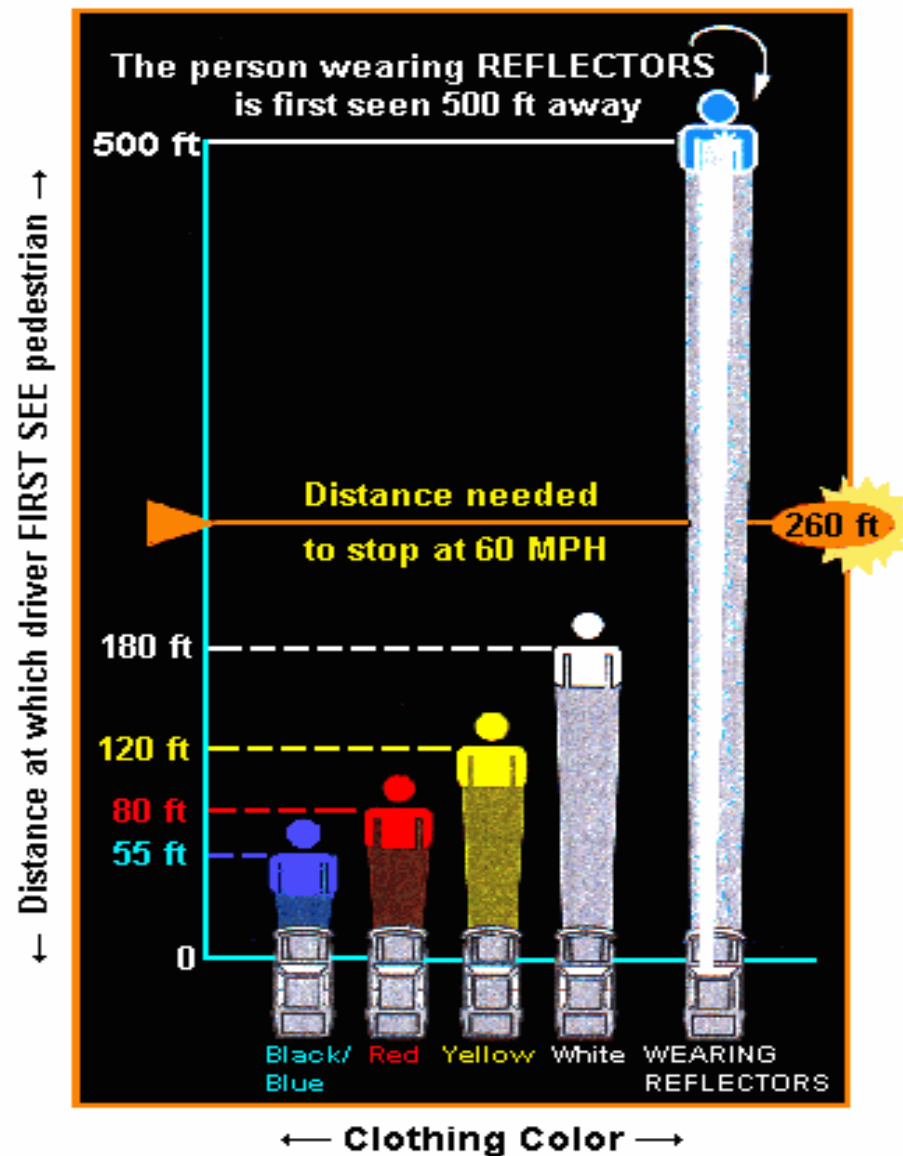
**10. If you feel uncomfortable driving in bad weather, consider whether your journey is really necessary or whether you can go by an alternative to the car.**



Safety Pays on  
Winter Days!

❑ Studies have shown that pedestrians walking along a road in dark clothing at night are first seen approximately 55 feet away giving the driver less than one second reaction time.

❑ A driver traveling at 60 MPH needs over 260 feet to stop.







# AGGRESSIVE DRIVING



- ❑ Speed, tailgating, fail to yield, weave in-and-out of traffic, pass on the right, make improper and unsafe lane changes, run stop signs and red lights, make hand and facial gestures, scream, honk, and flash lights
- ❑ Be impaired by alcohol or drugs, and drive unbelted or take other unsafe actions

